Amendments to the Specification:

Please change the title of the invention to:

POWER CONVERTER AND CONTROL METHOD FOR A POWER CONVERTER USING SERIALLY-CONNECTED DC POWER SOURCES

Please replace the last paragraph starting on page 2 and the first two full paragraphs on page 3 with the following three paragraphs:

FIG. 1 is a circuit diagram of an electric power converter~~, which~~ that is suitable for applying the control method for the electric power converter for the present invention. The negative pole of second DC power source 11 and the positive pole of first DC power source 10 are connected to common bus line 15 to form a pole. A group of semiconductor switches 7a/8a/9a and a group of diodes 7b/8b/9b are connected between negative pole bus line 14 of the first DC power source 10 and the terminal of each phase of three-phase AC motor (load) 17 in a similar manner as the lower arms of a commonly known three-phase inverter. Common bus line 15 is connected to the terminal of each phase of three-phase AC motor 17 by semiconductor switches, 1a/1b, 2a/2b, and 3a/3b respectively, which are capable of controlling bi-directional conductance. Also, positive bus line 16 of the second DC power source 11 is connected to the terminal of each phase of three-phase AC motor 17 by semiconductor switches, 4a/4b, 5a/5b, and 6a/6b respectively, which are capable of controlling bi-directional conductance.

Smoothing capacitor 12 is provided between ~~first~~ negative pole bus line 14 of the first DC power source 10 and common bus line 15, and smoothing capacitor 13 is provided between positive pole bus line 16 of the second DC power source 11 and common bus line 15. Three-phase AC motor 17 is connected to the power converter as the load.

The electric potential of the output terminals of the power converter thus constituted can be considered as described below, assuming the voltage of the first DC power source 10 as E1, the voltage of the second DC power source 11 as E2, and giving particular reference to the U-phase terminals[[:]].

Please replace the last paragraph starting on page 4 and ending on page 5 with the following paragraph:

The operation of comparator 104 is described in detail below. FIG. 5 is a timing chart showing the U-phase ~~switch's~~ switch ON/OFF actions due to triangular wave comparison of the voltage command modulation signal. As shown in FIG. 5, comparator 104 has an upper level triangular wave and a lower level triangular wave with a 180-degree difference in phase, and the amplitude of the lower level triangular wave is equal to the voltage E1 of the first DC power source 10, while the amplitude of the upper level triangular wave is equal to the voltage E2 of the second DC power source 11. The base of the triangular wave and the apex correspond to the electrical potentials of the pole bus lines 14, 15, 16 shown in FIG. 1. The upper and lower level triangular waves can perform similar electrical potential switching actions without having to have a phase difference between them.

Please replace the second full paragraph of page 5 with the following paragraph:

First, consider a case in which the inverter circuit constituted only of the first DC power source 10 is driven in accordance with the comparison between the lower level triangular wave and the voltage command modulation signal. Switch 1b is ON and switch 4a is OFF, while the ON/OFF statuses of switches 1a and 7a are determined as follows:

Please replace the fourth full paragraph of page 5 with the following paragraph:

Next, consider a case in which the inverter circuit constituted only of the second DC power source 11 is driven in accordance with the comparison between the upper level triangular wave and the voltage command modulation signal. Switch 1a is ON and switch 7a is OFF, while the ON/OFF statuses of switches 1b and 4a are determined as follows:

Please replace the sixth and seventh full paragraphs of page 5 with the following two paragraphs:

Combining the above two triangular wave comparisons, the following switch selection ~~method~~ is obtained:

When the voltage command modulation signal < (is less than) the lower level triangular wave

1a=OFF/7a=ON 1b=ON 4a=OFF <u>4b=OFF</u>

Please replace the second and third full paragraphs of page 6 with the following two paragraphs:

When the voltage command modulation signal [[>]] $\geq$ (is greater than or equal to) the upper level triangular wave

1a=ON/7a=OFF 1b=OFF 4a=ON 4b=ON

FIG. 5 shows the ON/OFF actions of these U-phase switches. In FIG. 5, when the ON signal is high, ~~each~~ <u>the related</u> switch turns on.

Please replace the fourth full paragraph of page 6 with the following paragraph:

FIG. 6 is a timing chart showing an example of a comparison between the triangular wave and the voltage command modulation signal to which is added ~~the~~ <u>an</u> offset voltage command value. For reference character A in FIG. 6, the offset voltage command value is one half of the first DC power source voltage E_1, so that the voltage command modulation signal is compared only with the lower level triangular wave if the amplitude of the AC voltage command value is smaller than $E_1/2$.

Please replace the last full paragraph of page 6 with the following paragraph:

For reference character C in FIG. 6, the offset voltage command value is the DC power source voltage E_1. The voltage command modulation signal is compared with the upper/lower level triangular waves~~ and since~~<u>. Since</u> the areas surrounded by the compared voltage command modulation signal and the offset command value are equal between the upper and lower levels, ~~if the motor phase current is a sinusoidal wave with no offset, then~~ the power

source voltages of the upper and lower levels will be equal <u>if the motor phase current is a sinusoidal wave with no offset</u>. In other words,

Please replace the last full paragraph of page 7 with the following paragraph:

~~The~~ <u>In contrast, a</u> control method for the electric power converter that pertains to the present invention drives the motor by using a voltage generated by adding the voltages of the two power source voltages so that the output range can be expanded without the use of a DCDC converter. Therefore, by using this method, it becomes possible to reduce the loss and the volume of the system.

Please replace the second full paragraph of page 8 with the following paragraph:

~~To provide~~ <u>One embodiment provides</u> a control method for an electric power converter that has first and second DC power sources 10 and 11[[,]] and a pole 15 formed by connecting ~~said~~ <u>the</u> first DC power source's positive pole 16 with ~~said~~ <u>the</u> second DC power source's negative pole 14~~, wherein a~~<u>. A</u> voltage is applied to a load (e.g., motor 17) by switching between ~~said~~ <u>the</u> first DC power source's negative pole and ~~said~~ <u>the</u> second DC power source's positive pole 16. This method includes~~: a step for determining conductivity for~~ <u>operating</u> a switch between the positive and negative poles of ~~said~~ <u>the</u> first DC power source when the voltage command is lower than the electric potential output by ~~said~~ <u>the</u> second DC power source; ~~a step for determining conductivity for~~ <u>and operating</u> a switch between the positive and negative poles of ~~said~~ <u>the</u> second DC power source when the voltage command is higher than the electric potential output by ~~said~~ <u>the</u> second DC power source~~; and a step for switching~~<u>. This switches</u> the pole to be connected to ~~said~~ <u>the</u> load~~ in accordance with said determining steps~~.

Please replace the four full paragraphs of page 9 with the following paragraphs:

Furthermore, in another embodiment of the present invention, when selecting a terminal to be connected to the load from each of the poles, consisting of two connected DC power sources based on the voltage command, it is possible to arbitrarily manipulate the

distribution of the output voltages of the two DC power sources while applying the voltage generated by pulse width modulation (PWM) to the load by applying voltage based on the result of the comparison between the carrier and the voltage command. This not only allows for a reduction of elements that cause loss in the current passage from the power source to the load, but also reduces the higher harmonic current by means of PWM, thus minimizing the overall loss in the system.

Furthermore, according to another embodiment, it is possible to disconnect the connection between a pole and the load by using a switch that makes it possible to select bi-directional conductance between the positive pole bus line and the terminal that connects with the load when selecting the terminal to be connected to the load from each of the poles consisting of two connected DC power sources based on the voltage command~~ so that~~. This increases the selectivity of the potential ~~can be increased~~ compared to when a combination of a switching element and a diode are used in the same location. This makes it possible to arbitrarily select the voltage to be applied to the load, thus making it possible to suppress the higher harmonic current and reduce the loss.

Furthermore, according to another embodiment of the present invention, it is possible to provide guidance as to which switch of the pole bus line should be turned ON or OFF[[,]] based on the comparison between the carrier and the voltage command, since the carrier and the bus line electrical potential are in a corresponding relation. This makes it possible to easily generate the PWM signal for turning the switch ON or OFF.

Furthermore, according to another embodiment of the present invention, it is possible to have a symmetric voltage waveform containing higher harmonic components of odd number orders for the voltage to be applied to the load by choosing a triangular wave for the carrier. So, for example, even if an electric power converter that applies a ~~thee-phase~~ three-phase AC voltage and its load contain higher harmonic components of 3n orders, this will not affect the current~~, so~~. Thus, use of a symmetric voltage waveform containing higher harmonic components of odd number orders can reduce the effects of the higher harmonic current of the load.

Please replace the first full paragraph on page 10 with the following paragraph:

Furthermore, according to another embodiment of the present invention ~~embodiment~~, the load voltage can be adjusted by the electric power converter while manipulating the output power distribution of the two DC power sources by ~~determining the conductance of~~ <u>operating</u> the switch of the electric power converter based on the voltage command generated by adding the power distribution command and the voltage command. This makes the use of a power-converter~~, such as a DCDC converter,~~ for controlling the power distribution<u>, such as a DCDC converter,</u> unnecessary.